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OIL AND WATER ABSORPTION CAPACITY OF WHEAT, RICE AND GRAM FLOUR POWDERS

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ABSTRACT

The aim of this study is to evaluate oil and water absorption capacity of wheat, rice, and gram flour. The experiment was designed using Taguchi experimental model for observing best formulations of food powders. The experiment was design according to following formulations i.e. wheat flour (100, 80, 75, 70, 20 and 10 g), rice flour 100, 80, 75, 70,25,20,10 g) and gram flour (100, 80, 75, 70, 25,10g) were used to make food powder formulations. Each sample with formulations were analyzed for physiochemical and functional properties. The observations were determined (i.e., moisture, loose bulk density, tapped density, ash, dry matter, gluten, and functional properties swelling capacity, least gelation concentration (LGC), foam capacity (FC), foam stability (FS), emulsion capacity (EC), oil holding capacity (OHC) and water holding capacity (WHC)). The present study was resulted that the highest value of moisture, loose bulk density, tapped density, dry matter, gluten, swelling capacity, least gelation concentration, foam capacity, foam stability, emulsion capacity, water holding capacity and oil holding capacity were 55.54%, 0.97 g/mL, 0.98, 66.46%, 0.98%, 4.42%, 32.28%, 15.67, 26.77%, 20.24%, 22.49%, 20.22 g of water/g of flour and 22.53 g of oil/g of flour, respectively. The obtained results showed a remarkable wheat, rice and gram flours of water holding capacity and oil holding capacity, which indicates the enhanced hydrophobic character of proteins in the flours. The results were confirmed under industrial conditions, and can be considered as favorable for the preparation of viscous foods such as soups, gravies and bakery products. As well as wheat, rice and gram flour would improve the texture and quality of those foods products which are currently prepared from wheat, rice and gram flour.

Keywords: Food powders, WHO, industry, flow properties, texture, quality.